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N° 17,033



A.D. 1890

Date of Application, 24th Oct., 1890—Accepted, 29th Nov., 1890

## COMPLETE SPECIFICATION

## Improved Means for Propelling Vessels.

I, JUAN ANGLÉS Y GIBERT, of Barcelona, in the Kingdom of Spain, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to improved means for propelling ships and other vessels, and consists in the employment of a propeller which bears a certain resemblance and acts in a somewhat similar manner to the tail of a fish. The propeller is fixed to a rocking shaft, arranged vertically and actuated in any known manner. The propeller when vibrating assumes a curved form, the curve being inclined to the direction in which the vessel is moving, and is thus enabled to act on the water so as to urge the vessel forward or backward as the case may be. The propeller may, however, be made of an unyielding material.

In the accompanying diagrams,

Fig. 1 illustrates in side elevation a propeller formed of two scalene triangles arranged with their bases *a a* in a straight line with one another; the dotted line indicating the shape of the tail of a fish in order to shew the resemblance thereto.

Fig. 2 represents a propeller built up of two such triangles placed side by side; the part *a* being intended for attachment to the vibrating shaft whence motion is derived.

Fig. 3 serves to explain the action of the propeller-blade in moving through the water from left to right; the curved lines representing different positions of the blade. The crossed lines at the right-hand end of the diagram illustrate the reaction which takes place on the direction of movement being changed from the left to the right.

Fig. 4 is a similar diagram which explains the action of the propeller-blade in moving from right to left instead of from left to right.

Fig. 5 is a combination of Figs. 3 and 4, and represents the action and reaction of the blade in moving in both directions.

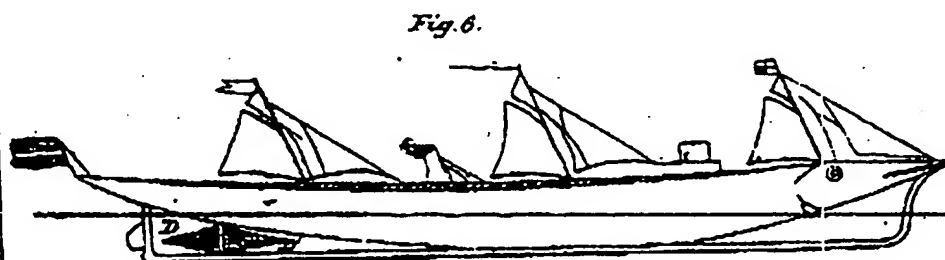
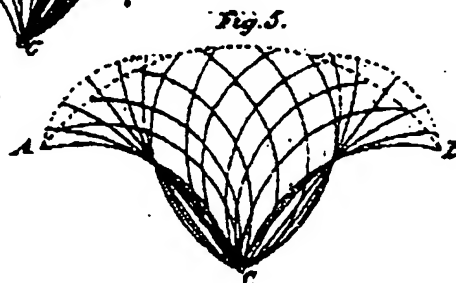
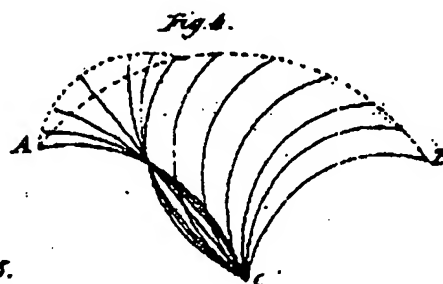
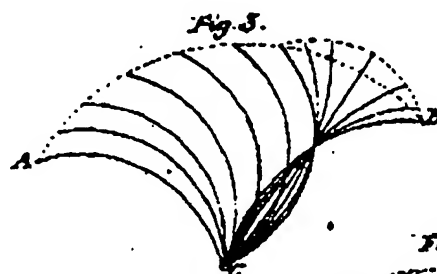
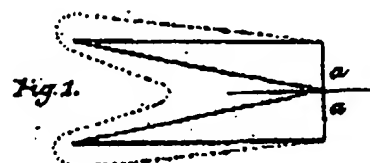
Fig. 6 illustrates the application of my invention to a steamer.

The improved propeller is preferably placed at the stern of the vessel, though it may be placed at the bow. Two propellers, one on each side of the vessel, may be employed; but in the open sea, in port or on rivers where there is a large traffic, propellers so placed are liable to injury. The arrangement of the propellers at the sides of the vessel is best suited to small pleasure boats for use on still waters.

One propeller placed at the stern of the vessel is sufficient for effecting both the forward and the backward movement, though two propellers *D* and *D'*, Fig. 6, may be employed; one (*D*) serving to urge the vessel forward and the other (*D'*) backward. When one of the propellers is in action, the other remains stationary in a neutral position. When only one propeller is used, such propeller should be arranged so as to vibrate in either of two positions, according to whether the vessel is required to move forward or backward—that is, one position should correspond with the position in which the propeller *D* is shewn, and the other position with the position of the propeller *D'*. The movement of the single propeller from the one position into the other is effected by reversing gear.

In Figs. 3 to 5, the line *A C* shews the position of the propeller-blade when first fully bent in moving from left to right; the line *B C* showing the similar position of the blade in moving from right to left. The blade when moving bends in consequence of the resistance of the water. At the moment when the direction of movement is changed, the blade becomes straight, and then bends in the opposite direction.

[Price 6d.]



[This drawing is a reproduction of the Original in a reduced scale.]

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*Gibert's Improved Means for Propelling Vessels.*

The mechanism employed in actuating the propeller or propellers, or in fixing one propeller (when two are used) while the other works, varies according to the kind of motor employed and is not described in detail, because such contrivances are well known to those versed in the art.

A flexible propeller such as above described does not cause the vessel to rock, but the vessel, when at full speed, advances in a straight line.

I prefer to construct the propeller of sheet steel. It should be very strong where secured to the vertical shaft, and gradually become thinner and more and more flexible until the tip of the blade (which should be the thinnest part) is reached. The propeller-blade may be bordered with caoutchouc or equivalent material. 10

Having thus particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I claim:—

1. The improved means for propelling vessels, comprising a propeller-blade attached to a rocking shaft and operating substantially as herein described.
2. The improved means for propelling vessels constructed and operating substantially as herein described with reference to Fig. 6: such means comprising two propeller-blades D and D', one serving to produce the forward and the other the backward movement of the vessel. 15
3. The improved means for propelling vessels comprising a single flexible vibrating reversible propeller adapted to work in either of two positions so as to make the vessel move forward or backward as desired, substantially as herein described. 20

Dated this 24th day of October 1890.

JUAN ANGLÉS Y GIBERT.

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